Background

Abandoned Phosphate Mine Environment – Observations from a site visit and imagery

1. Historical Site Assessment (HSA) information indicates that the elapsed time from previous mining operations to current land use is at least 30 years for all sites. The natural re-vegetation of the sites has obscured most man-made features except for the spoil mounds. The mounds are identified through process knowledge of the mining techniques used because most are heavily vegetated.

2. Water features including lakes, ponds, swamp areas and man-made canals vary from approximately 10-25% of the total land area within each CERCLA boundary provided.

3. Heavy vegetation areas that include mature trees and tangled undergrowth vary from approximately 15-35% of the total land area within each CERCLA boundary provided.

4. Open areas that may be driven by the RSL Kiwi vehicle or an ATV-mounted system vary approximately 30-60% of the sites. Some of the open areas may be parks, golf courses, residential areas or cattle grazing areas with limited access.

5. Open areas between trees or shrubs comprise approximately 15% of the sites. These areas could be accessible by a walking survey only using a backpack-type gamma detection system.

Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) Guidance

Scoping Surveys

Dependent on the progress of the HSA and initial radiological measurements conducted by the EPA, scoping surveys may be used to meet specific objectives including:

1. Providing data for the site prioritization scoring process.
2. Providing data for the characterization survey design.
3. Supporting the classification of portions of each site as a Class 3 area for planning a final status survey.
4. Obtaining an estimate of the variability of the residual contamination for each site.
5. Identifying non-impacted areas that may be appropriate for reference areas where the radionuclides of interest are in the terrestrial background.

Kiwi:

The detector height for the Kiwi vehicle will be 3-feet (1 meter) during the surveys. At an average forward speed of 2 meters/second and an effective detector width of 3 meters, the total footprint for the Kiwi is approximately 6 m^2 per second. If any "hot spots" measuring from 10 to 100 feet in diameter are within the survey area, the Kiwi data will convert to an actual exposure rate without the need for a multiplier correction factor. The ability for the vehicle to conduct adjacent line spacing to achieve 100% gamma scan coverage is heavily dependent on terrain, vegetation, structures and water features. Based on the ground conditions observed during the site visit, the Kiwi may only complete a gamma scan approximating 50% of the total site area due to the large areas of water and heavy vegetation.

ATV or Backpack Surveys:

The ATV and/or two ground backpack team's options would be used in conjunction with the Kiwi vehicle to obtain data in areas inaccessible to the larger vehicle. An ATV and backpack effort may add an additional 10-15% of gamma scan data at each site in support of the Kiwi surveys. Standard ground-based measurements are taken at 3 feet (1-meter) above ground level. With a forward speed that averages 1 meter per second, the detector footprint is about 6 feet (1.6 meters) in diameter.

Table 1. Scoping and Characterization Surveys
Comparison of Aerial, Kiwi and Ground Systems

Survey System	**Gamma Scan Coverage**	**Area Surveyed per Day**	**Class 1 Survey Unit Coverage**	**Class 2 Survey Unit Coverage**	**Class 3 Survey Unit Coverage**
Helicopter	95-100%	5 square miles	No	Partial	Yes
Kiwi	< 50%	.04 square miles	Yes	Yes	Yes
ATV or Backpack	< 15% (used with Kiwi)	.03 square miles	Yes	Yes	Yes

Table 2. Relative Safety Hazard Comparisons of Aerial, Kiwi and Ground Systems

Survey System	**Weather**	**Towers and Trees**	**Snakes, Insects, Animals**	**Slip, Trip and Fall**
Helicopter	Medium	High	Low	Low
Kiwi	Medium	Low	Medium	Medium
ATV or Bkpack	Medium	Low	High	High

FLORIDA PHOSPHATE MINES COST AND COVERAGE BREAKDOWN

Survey Type	Coverage	Daily Coverage in Square Miles	Averaged Daily Rate (includes planning, acquisition, analysis, and report)	# Days to Complete Designated Coverage	Total Cost for Covered Area	Cost per Square Mile	Cost per Square Mile based on Coverage %
Aerial - Individual Survey		5	$40,000	21	$840,000	$8,000	
Coverage %	100%						Aerial
Total Coverage Area	63						$8,000
Coverage Square Miles based on %	63						
Aerial - Combined Survey		5	$40,000	15	$600,000	$8,000	
Coverage %	100%						
Total Coverage Area	63						
Coverage Square Miles based on %	63						
Ground - Kiwi		0.04	$12,000	790	$9,480,000	$300,000	
Coverage %	50%						Ground
Total Coverage Area	63						$323,077
Coverage Square Miles based on %	32						
Ground - Backpack		0.03	$12,000	320	$3,840,000	$400,000	
Coverage %	15%						
Total Coverage Area	63						
Coverage Square Miles based on %	10						

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AGENDA
SITE PLANNING MEETING
CORONET OU2 (A.K.A. LAKESIDE STATION)
CORONET INDUSTRIES SITE
PLANT CITY, FLORIDA
May 5, 2010

Purpose: Develop consensus on approach for proceeding with RI/FS for Lakeside Station OU.

Background

- Coronet site described in CERCLIS as a 2500-acre parcel.
- EPA entered into AOC in 2007 with Coronet Industries, Inc. to conduct an RI/FS on a 980-acre parcel owned by Coronet.
- EPA has planned to address 1520-acre balance of property as a second OU with current owner and former owner/operator.
- In 2008 EPA was initially approached by Lakeside Station regarding conducting the assessment though a State-led Brownfield Site Rehabilitation Agreement (BSRA); later through a BFPP work agreement; and presently as a BFPP.
- BSRA concept currently delayed pending resolution of broader phosphate issues regarding cleanup standards.

Site Issues

- RI/FS needed for Lakeside Station OU so that entire CERCLA site can be addressed.
- Several options have been discussed since 2008 to conduct RI/FS:
  - BSRA
  - BFPP
  - Enforcement Lead
  - Fund Lead
- Current RI/FS AOC w/ Coronet provides for addressing the migration of contaminants from Coronet's operations and/or property Coronet owns. However, AOC does not provide for addressing contaminants (primarily TENORM) from mining operations that pre-dated Coronet's ownership, or that occurred on property not owned (e.g., Lakeside Station or Lincoln Park).

Recommended Approach (Initially Fund-Lead followed by Enforcement-Lead, if possible.)

- Phase 1 (Fund-Lead):
  - Radiological Scoping Survey (Sept. 2010). Objectives: Obtain information on general location and rand of radiation levels expected. Evaluate field

conditions. Information used to plan subsequent radiological site characterization survey.

- Radiological Site Characterization Survey (Dec. 2010). Objectives: Conduct detailed radiological characterization of nature and extent of radiological contamination. Information used to determine boundary for subsequent RI/FS.

- Phase 2 (RI/FS):
  - Pursue enforcement-lead RI/FS with former owners/operators identified from PRP search.
  - If PRPs cannot be established by spring 2011, proceed with fund-lead RI/FS.

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